Complete Summary

GUIDELINE TITLE

Recommended immunization schedules for children and adolescents: United States, 2007.

BIBLIOGRAPHIC SOURCE(S)

American Academy of Pediatrics Committee on Infectious Diseases. Recommended immunization schedules for children and adolescents--United States, 2007. Pediatrics 2007 Jan;119(1):207-8, 3 p following 208. [2 references] PubMed

Centers for Disease Control and Prevention. Recommended immunization schedules for persons aged 0-18 years - United States, 2007. MMWR Recomm Rep 2007 Jan 5;55(51-52):Q1-4. [6 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates previously published versions: American Academy of Pediatrics, Committee on Infectious Disease. Recommended childhood and adolescent immunization schedule--United States, 2006. Pediatrics 2006 Jan;117(1):239-40.

Centers for Disease Control and Prevention (CDC). Recommended childhood and adolescent immunization schedule -- United States, 2006. MMWR Morb Mortal Wkly Rep 2006 Jan 6;54(51&52):Q1-4.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- February 13, 2007, Rotavirus, Live, Oral, Pentavalent Vaccine (RotaTeq): FDA Public Health Notification regarding 28 post-marketing reports of intussusception following administration of Rotavirus, Live, Oral, Pentavalent vaccine (RotaTeq).
- October 23, 2006 update, Menactra (Meningococcal Conjugate Vaccine): Updated alert to consumers and health care providers regarding reports of

Guillain Barre Syndrome (GBS) following administration of Meningococcal Conjugate Vaccine A, C, Y, and W135.

- October 3, 2005, Menactra (Meningococcal Conjugate Vaccine): The U.S. Food and Drug Administration (FDA) and the Centers for Disease Control and Prevention (CDC) notified consumers and health care providers of five reports of Guillain Barre Syndrome following administration of Meningococcal Conjugate Vaccine A, C, Y, and W135 (trade name Menactra).

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Vaccine-preventable diseases:

- Diphtheria
- Hepatitis A and B
- Haemophilus influenzae infection
- Human papillomavirus (HPV) infection
- Influenza
- Measles
- Meningococcal disease
- Mumps
- Pertussis
- Pneumococcal infection
- Rotavirus infection
- Polio
- Rubella
- Tetanus
- Varicella (chickenpox)

GUIDELINE CATEGORY

Prevention

CLINICAL SPECIALTY

Family Practice
Infectious Diseases
Pediatrics
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Health Care Providers
Nurses
Physician Assistants
Physicians
Public Health Departments

GUIDELINE OBJECTIVE(S)

- To ensure that the recommended childhood and adolescent immunization schedule is current with changes in vaccine formulations
- To reflect revised recommendations for the use of licensed vaccines, including those newly licensed

TARGET POPULATION

Children and adolescents through 18 years residing in the United States

INTERVENTIONS AND PRACTICES CONSIDERED

Immunization with the following vaccines:

1. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP/Tdap/Td)
2. Haemophilus influenzae type b (Hib) conjugate
3. Hepatitis A and B (HepA and HepB) vaccine
4. Inactivated polio virus (IPV)
5. Influenza vaccine
    - Intramuscular trivalent inactivated influenza vaccine (TIV)
    - Live-attenuated influenza vaccine (LAIV)
6. Measles, mumps and rubella (MMR) vaccine
7. Meningococcal vaccine
    - Meningococcal conjugate vaccine (MCV4)
    - Meningococcal polysaccharide vaccine (MPSV4)
8. Pneumococcus
    - Pneumococcal conjugate vaccine (PCV)
    - Pneumococcal polysaccharide vaccine (PPV)
9. Varicella vaccine
10. Rotavirus vaccine (Rota)
11. Human papillomavirus vaccine

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The recommended immunization schedules for persons aged 0 to 18 years and the catch-up immunization schedule for 2007 were approved by the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention, the American Academy of Pediatrics, and the American Academy of Family Physicians.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse (NGC): The guideline recommendations are presented in the form of tables with footnotes (see below). The changes to the previous childhood and adolescent immunization schedule, published January 2006, are as follows:

- The new rotavirus vaccine (Rota) is recommended in a 3-dose schedule at ages 2, 4, and 6 months. The first dose should be administered at ages 6 weeks through 12 weeks. With subsequent doses administered at 4 to 10 week intervals. Rotavirus vaccination should not be initiated for infants aged >12 weeks and should not be administered after age 32 weeks.
- The influenza vaccine is now recommended for all children aged 6 to 59 months.
- Varicella vaccine recommendations are updated. The first dose should be administered at age 12 to 15 months, and a newly recommended second dose should be administered at age 4 to 6 years.
- The new human papillomavirus vaccine (HPV) is recommended in a 3-dose schedule with the second and third doses administered 2 and 6 months after the first dose. Routine vaccination with HPV is recommended for females aged 11 to 12 years; the vaccination series can be started in females as young as age 9 years; and a catch-up vaccination is recommended for females aged 13 to 26 years who have not been vaccinated previously or who have not completed the full vaccine series.
- The main change to the format of the schedule is the division of the recommendation into two schedules: one schedule for persons aged 0 to 6 years and another for persons aged 7 to 18 years. Special populations are represented with purple bars; the 11 to 12 years assessment is emphasized with bold, capitalized fonts in the title of that column. Rota, HPV, and varicella vaccines are incorporated in the catch-up immunization schedule.

Vaccine Information Statements

The National Childhood Vaccine Injury Act requires that health-care providers provide parents or patients with copies of Vaccine Information Statements before administering each dose of the vaccines listed in the schedule. Additional information is available from state health departments and from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/nip/publications/vis.

Detailed recommendations for using vaccines are available from package inserts, ACIP statements on specific vaccines, and the 2003 Red Book. ACIP statements for each recommended childhood vaccine are available from CDC at http://www.cdc.gov/nip/publications/acip-list.htm. In addition, guidance for

obtaining and completing a Vaccine Adverse Event Reporting System form is available at http://www.vaers.hhs.gov or by telephone, 800-822-7967.

Recommended Immunization Schedule for Ages 0 to 6 Years – United States, 2007

Vaccine	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	19 to 23 months	2 to 3 year
Hepatitis B[1]	HepB	HepB		See footnote 1	HepB				HepB Se	
Rotavirus[2]			Rota	Rota	Rota					
Diphtheria, Tetanus, Pertussis[3]			DTaP	DTaP	DTaP		DTaP			
Haemophilus influenzae type b[4]			Hib	Hib	Hib[4]	Hib		Hib		
Pneumococcal[5]			PCV	PCV	PCV	PCV				PCV
Inactivated Poliovirus			IPV	IPV	IPV					
Influenza[6]					Influenza (Yearly)					
Measles, Mumps, Rubella[7]						MMR				
Varicella[8]						Varicella				
Hepatitis A[9]						HepA (2 doses)				Hep
Meningococcal[10]										M

Range of recommended ages	Catch-up immunization	Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 0 to 6 years. Additional information is available at http://www.cdc.gov/nip/recs/child-schedule.htm. Any dose not administered at the recommended age should be administered at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS).

Guidance about how to obtain and complete a VAERS form is available at http://www.vaers.hhs.gov or by telephone, 800-822-7967.

1. Hepatitis B vaccine (HepB). (Minimum age: birth)

   At birth:

   - Administer monovalent HepB to all newborns prior to hospital discharge.
   - If mother is hepatitis B surface antigen (HBsAg)-positive, administer HepB and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
   - If mother's HBsAg status is unknown, administer HepB within 12 hours of birth. Determine the HBsAg status as soon as possible and if HBsAg-positive, administer HBIG (no later than age 1 week).
   - If mother is HBsAg-negative, the birth dose can only be delayed with physician's order and mothers' negative HBsAg laboratory report documented in the infant's medical record.

   Following the birth dose:

   - The HepB series should be completed with either monovalent HepB or a combination vaccine containing HepB. The second dose should be administered at age 1 to 2 months. The final dose should be administered at age $\geq$24 weeks. Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg after completion of $\geq$3 doses in a licensed HepB series, at age 9 to 18 months (generally at the next well-child visit).

   4-month dose of HepB:

   - It is permissible to administer 4 doses of HepB when combination vaccines are given after the birth dose. If monovalent HepB is used for doses after the birth dose, a dose at age 4 months is not needed.

2. Rotavirus vaccine (Rota). (Minimum age: 6 weeks)
   - Administer the first dose between 6 and 12 weeks of age. Do not start the series later than age 12 weeks.
   - Administer the final dose in the series by 32 weeks of age. Do not administer a dose later than age 32 weeks.
   - There are insufficient data on safety and efficacy outside of these age ranges.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). (Minimum age: 6 weeks)
   - The fourth dose of DTaP may be administered as early as age 12 months, provided 6 months have elapsed since the third dose.
   - Administer the final dose in the series at age 4 to 6 years.

4. Haemophilus influenzae type b conjugate vaccine (Hib). (Minimum age: 6 weeks)

- If PRP-OMP (PedvaxHIB® or ComVax® [Merck]) is administered at ages 2 and 4 months, a dose at age 6 months is not required.
- TriHiBit® (DTaP/Hib) combination products should not be used for primary immunization but can be used as boosters following any Hib vaccine in ≥12 months olds.

5. Pneumococcal vaccine. (Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPV])
    - Administer PCV at ages 24 to 59 months in certain high-risk groups. Administer PPV to children aged ≥2 years in certain high-risk groups. See MMWR 2000; 49(RR-9):1-35.

6. Influenza vaccine. (Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 5 years for live, attenuated influenza vaccine [LAIV])
    - All children aged 6 to 59 months and close contacts of all children aged 0 to 59 months are recommended to receive influenza vaccine.
    - Influenza vaccine is recommended annually for children aged ≥59 months with certain risk factors, healthcare workers, and other persons (including household members) in close contact with persons in groups at high risk. See MMWR 2006; 55(RR-10);1-41.
    - For healthy persons aged 5 to 49 years, LAIV may be used as an alternative to TIV.
    - Children receiving TIV should receive 0.25 mL if aged 6 to 35 months or 0.5 mL if aged ≥3 years.
    - Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).

7. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)
    - Administer the second dose of MMR at age 4 to 6 years. MMR may be administered before age 4 to 6 years, provided ≥4 weeks have elapsed since the first dose and both doses are administered at age ≥12 months.

8. Varicella vaccine. (Minimum age: 12 months)
    - Administer the second dose of varicella vaccine at age 4 to 6 years. Varicella vaccine may be administered prior to age 4 to 6 years, provided that ≥3 months have elapsed since the first dose and both doses are administered at age ≥12 months. If second dose was administered ≥28 days following the first dose, the second dose does not need to be repeated.

9. Hepatitis A vaccine (HepA). (Minimum age: 12 months)
    - HepA is recommended for all children at 1 year of age (i.e., 12 to 23 months). The 2 doses in the series should be administered at least 6 months apart.
    - Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
    - HepA is recommended for certain other groups of children including in areas where vaccination programs target older children. See MMWR 2006; 55(RR-7):1-23.

10. Meningococcal polysaccharide vaccine (MPSV4). (Minimum age: 2 years)
    - Administer MPSV4 to children aged 2 to 10 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high risk groups. See MMWR 2005;54 (RR-7):1-21.

Recommended immunization schedule for persons aged 7 to 18 years -- United States, 2007

<table>
<tr><th>Vaccine</th><th>7 to 10 years</th><th>11 to 12 YEARS</th><th>13 to 14 years</th><th>15 years</th><th>16 to 18 years</th></tr>
<tr><td>Tetanus, Diphtheria, Pertussis[1]</td><td>See footnote 1</td><td>Tdap</td><td colspan="3">Tdap</td></tr>
<tr><td>Human Papillomavirus[2]</td><td>See footnote 2</td><td>HPV (3 doses)</td><td colspan="3">HPV Series</td></tr>
<tr><td rowspan="2">Meningococcal[3]</td><td></td><td rowspan="2">MCV4</td><td></td><td>MCV4[3]</td><td></td></tr>
<tr><td>MPSV4</td><td colspan="3">MCV4</td></tr>
<tr><td>Pneumococcal[4]</td><td colspan="5">PPV</td></tr>
<tr><td>Influenza[5]</td><td colspan="5">Influenza (Yearly)</td></tr>
<tr><td>Hepatitis A[6]</td><td colspan="5">HepA Series</td></tr>
<tr><td>Hepatitis B[7]</td><td colspan="5">HepB Series</td></tr>
<tr><td>Inactivated Poliovirus[8]</td><td colspan="5">IPV Series</td></tr>
<tr><td>Measles, Mumps, Rubella[9]</td><td colspan="5">MMR Series</td></tr>
<tr><td>Varicella[10]</td><td colspan="5">Varicella Series</td></tr>
</table>

Range of recommended ages	Catch-up immunization	Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 7 to 18 years. Additional information is available at http://www.cdc.gov/nip/recs/child-schedule.htm. Any dose not administered at the recommended age should be administered at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective ACIP statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at http://www.vaers.hhs.gov or by telephone, 800-822-7967.

1. Tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap). (Minimum age: 10 years for BOOSTRIX® and 11 years for ADACEL™)

- Administer at age 11 to 12 years for those who have completed the recommended childhood DTP/DTaP vaccination series and have not received a Td booster dose.
- Adolescents 13 to 18 years who missed the 11 to 12 year Td/Tdap booster dose should also receive a single dose of Tdap if they have completed the recommended childhood DTP/DTaP vaccination series.

2. Human papillomavirus vaccine (HPV). (Minimum age: 9 years)
    - Administer the first dose of the HPV vaccine series to females at age 11 to 12 years.
    - Administer the second dose 2 months after the first dose and the third dose 6 months after the first dose.
    - Administer the HPV vaccine series to females at age 13 to 18 years if not previously vaccinated.

3. Meningococcal vaccine. (Minimum age: 11 years for meningococcal conjugate vaccine [MCV4]; 2 years for meningococcal polysaccharide vaccine [MPSV4])
    - Administer MCV4 at age 11 to 12-years and to previously unvaccinated adolescents at high school entry (approximately 15 years of age).
    - Administer MCV4 to previously unvaccinated college freshmen living in dormitories; MPSV4 is an acceptable alternative.
    - Vaccination against invasive meningococcal disease is recommended for children and adolescents aged $\geq$2 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high risk groups. See MMWR 2005;54 (RR-7):1-21. Use MPSV4 for children aged 2 to 10 years and MCV4 or MPSV4 for older children.

4. Pneumococcal polysaccharide vaccine (PPV). (Minimum age: 2 years)
    - Administer for certain high-risk groups. See MMWR 1997;46(RR-08); 1-24 and MMWR 2000;49(RR-9):1-35.

5. Influenza vaccine. (Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 5 years for live, attenuated influenza vaccine [LAIV])
    - Influenza vaccine is recommended annually for persons with certain risk factors, healthcare workers, and other persons (including household members) in close contact with persons in groups at high risk. See MMWR 2006; 55(RR-10);1-41.
    - For healthy persons aged 5 to 49 years, LAIV may be used as an alternative to TIV.
    - Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by $\geq$4 weeks for TIV and $\geq$6 weeks for LAIV).

6. Hepatitis A vaccine (HepA). (Minimum age: 12 months)
    - The 2 doses in the series should be administered at least 6 months apart.
    - HepA is recommended for certain other groups of children including in areas where vaccination programs target older children. See MMWR 2006;55(RR-7):1-23.

7. Hepatitis B vaccine (HepB). (Minimum age: birth)

- Administer the 3-dose series to those who were not previously vaccinated.
- A 2-dose series of Recombivax HB® is licensed for 11 to 15 year olds.

8. Inactivated poliovirus vaccine (IPV). (Minimum age: 6 weeks)
   - For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if third dose was administered at age ≥4 years.
   - If both OPV and IPV were administered as part of a series, a total of 4 doses should be given, regardless of the child's current age.

9. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)
   - If not previously vaccinated, administer 2 doses of MMR during any visit with ≥4 weeks between the doses.

10. Varicella vaccine. (Minimum age: 12 months)
    - Administer 2 doses of varicella vaccine to persons without evidence of immunity.
    - Administer 2 doses of varicella vaccine to persons aged ≤13 years at least 3 months apart. Do not repeat the second dose, if administered ≥28 days following the first dose.
    - Administer 2 doses of varicella vaccine to persons aged ≥13 years at least 4 weeks apart.

Catch-up Immunization Schedule for Persons Aged 4 Months to 18 Years Who Start Late or Who Are ≥1 Month Behind—United States, 2007

The tables below give catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the table appropriate for the child's age.

Catch-up Schedule for Persons Aged 4 Months to 6 Years					
Vaccine	Minimum age for Dose 1	Minimum Interval between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B[1]	Birth	4 weeks	8 weeks (and 16 weeks after first dose)		
Rotavirus[2]	6 weeks	4 weeks	4 weeks		
Diphtheria, Tetanus, Pertussis[3]	6 weeks	4 weeks	4 weeks	6 months	6 months[3]
Haemophilus influenzae type b[4]	6 weeks	4 weeks if first dose given at age <12 months	4 weeks[4] if current age <12 months 8 weeks (as	8 weeks (as final dose) This dose only necessary for children aged 12	

Catch-up Schedule for Persons Aged 4 Months to 6 Years					
Vaccine	Minimum age for Dose 1	Minimum Interval between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
		8 weeks (as final dose) if first dose given at age 12 to 14 months No further doses needed if first dose given at age ≥15 months	final dose)[4] if current age ≥12 months and second dose given at age <15 months No further doses needed if previous dose given at age ≥15 months	months to 5 years who received 3 doses before age 12 months	
Pneumococcal[5]	6 weeks	4 weeks if first dose given at age <12 months and current age <24 months 8 weeks (as final dose) if first dose given at age ≥12 months or current age 24 to 59 months No further doses needed for healthy children if first dose given at age ≥24 months	4 weeks if current age <12 months 8 weeks (as final dose) if current age ≥12 months No further doses needed for healthy children if previous dose given at age ≥24 months	8 weeks (as final dose) This dose only necessary for children aged 12 months to 5 years who received 3 doses before age 12 months	
Inactivated Poliovirus[6]	6 weeks	4 weeks	4 weeks	4 weeks[6]	
Measles, Mumps, Rubella[7]	12 months	4 weeks			
Varicella[8]	12 months	3 months			
Hepatitis A[9]	12 months	6 months			

Catch-up Schedule for Persons Aged 7 to 18 Years					
Vaccine	Minimum age for Dose 1	Minimum Interval between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Tetanus, Diphtheria/Tetanus, Diphtheria, Pertussis[10]	7 years[10]	4 weeks	8 weeks if first dose given at age <12 months 6 months if first dose given at age ≥12 months	6 months if first dose given at age <12 months	
Human Papillomavirus[11]	9 years	4 weeks	12 weeks		
Hepatitis A[9]	12 months	6 months			
Hepatitis B[1]	Birth	4 weeks	8 weeks (and 16 weeks after first dose)		
Inactivated Poliovirus[6]	6 weeks	4 weeks	4 weeks	4 weeks[6]	
Measles, Mumps, Rubella[7]	12 months	4 weeks			
Varicella[8]	12 months	4 weeks if first dose given at age ≥13 years 3 months if first dose given at age <13 years			

1. Hepatitis B vaccine (HepB). (Minimum age: birth)
    - Administer the 3-dose series to those who were not previously vaccinated.
    - A 2-dose series of Recombivax HB® is licensed for 11 to 15 year olds.

2. Rotavirus vaccine (Rota). (Minimum age: 6 weeks)
    - Do not start the series later than age 12 weeks.
    - Administer the final dose in the series by 32 weeks of age. Do not administer a dose later than age 32 weeks.
    - Data on safety and efficacy outside of these age ranges are insufficient.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). (Minimum age: 6 weeks)
    - The fifth dose is not necessary if the fourth dose was administered at age ≥4 years.
    - DTaP is not indicated for persons aged ≥7 years.

4. Haemophilus influenzae type b conjugate vaccine (Hib). (Minimum age: 6 weeks)
    - Vaccine is not generally recommended for children aged ≥5 years.
    - If current age <12 months and the first 2 doses were PRP-OMP (PedvaxHIB® or ComVax® [Merck]), the third (and final) dose should be administered at age 12 to 15 months and at least 8 weeks after the second dose.
    - If first dose given at age 7 to 11 months, give 2 doses separated by 4 weeks plus a booster at age 12 to 15 months.

5. Pneumococcal conjugate vaccine (PCV). (Minimum age: 6 weeks)
    - Vaccine is not generally recommended for children aged ≥5 years.

6. Inactivated poliovirus vaccine (IPV). (Minimum age: 6 weeks)
    - For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if third dose was administered at age ≥4 years.
    - If both OPV and IPV were administered as part of a series, a total of 4 doses should be given, regardless of the child's current age.

7. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)
    - The second dose of MMR is recommended routinely at age 4 to 6 years but may be administered earlier if desired.
    - If not previously vaccinated, administer 2 doses of MMR during any visit with ≥4 weeks between the doses.

8. Varicella vaccine. (Minimum age: 12 months)
    - The second dose of varicella vaccine is recommended routinely at age 4 to 6 years but may be administered earlier if desired.
    - Do not repeat the second dose in persons aged <13 years, if administered ≥28 days following the first dose.

9. Hepatitis A vaccine (HepA). (Minimum age: 12 months)
    - HepA is recommended for certain groups of children including in areas where vaccination programs target older children. See MMWR 2006;55(RR-7):1-23.

10. Tetanus and diphtheria toxoids vaccine (Td) and tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap). (Minimum ages: 7 years for Td, 10 years for BOOSTRIX®, and 11 years for ADACEL™)
    - Tdap should be substituted for a single dose of Td in the primary catch-up series or as a booster if age-appropriate; use Td for other doses.
    - A five-year interval from the last Td dose is encouraged when Tdap is used as a booster dose. A booster (4th) dose is needed if any of the

previous doses were administered at age <12 months. Refer to ACIP recommendations for further information. See MMWR 2006;55(RR-3).

11. Human papillomavirus vaccine (HPV). (Minimum age: 9 years)
    - Administer the HPV vaccine series to females at age 13 to 18 years if not previously vaccinated.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Effective and age-appropriate administration of vaccines to children and adolescents
- Decline in vaccine-preventable diseases among children and adolescents

POTENTIAL HARMS

Adverse reactions to vaccines

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated and if approved by the U.S. Food and Drug Administration (FDA). Providers should consult the respective Advisory Committee on Immunization Practices (ACIP) statements for detailed recommendations.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American Academy of Pediatrics Committee on Infectious Diseases. Recommended immunization schedules for children and adolescents--United States, 2007. Pediatrics 2007 Jan;119(1):207-8, 3 p following 208. [2 references] PubMed

Centers for Disease Control and Prevention. Recommended immunization schedules for persons aged 0-18 years - United States, 2007. MMWR Recomm Rep 2007 Jan 5;55(51-52):Q1-4. [6 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004 Apr 30 (revised 2007 Jan)

GUIDELINE DEVELOPER(S)

American Academy of Family Physicians - Medical Specialty Society
American Academy of Pediatrics - Medical Specialty Society
Centers for Disease Control and Prevention - Federal Government Agency [U.S.]

SOURCE(S) OF FUNDING

United States Government

GUIDELINE COMMITTEE

Committee on Infectious Diseases

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee on Infectious Diseases, 2006 to 2007: Joseph A. Bocchini Jr, MD, Chairperson; Robert S. Baltimore, MD; Henry H. Bernstein, DO; John S. Bradley, MD; Michael T. Brady, MD; Penelope H. Dennehy, MD; Margaret C. Fisher, MD; Robert W. Frenck Jr, MD; David W. Kimberlin, MD; Sarah S. Long, MD; Julia A. McMillan, MD; Lorry G. Rubin, MD

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates previously published versions: American Academy of Pediatrics, Committee on Infectious Disease. Recommended childhood and adolescent immunization schedule--United States, 2006. Pediatrics 2006 Jan;117(1):239-40.

Centers for Disease Control and Prevention (CDC). Recommended childhood and adolescent immunization schedule -- United States, 2006. MMWR Morb Mortal Wkly Rep 2006 Jan 6;54(51&52):Q1-4.

GUIDELINE AVAILABILITY

Electronic copies: Available from the Centers for Disease Control and Prevention (CDC) Web site and the American Academy of Pediatrics (AAP) Policy Web site.

Print copies: Available from the Centers for Disease Control and Prevention, MMWR, Atlanta, GA 30333. Additional copies can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9325; (202) 783-3238.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

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